

GENERAL COMMENTS

Commenting Organization: CH2M HILL
General Comment #:

Commenter: Keiser

PCBs are the only COC listed, how will the reduction in concentration of other COCs associated with PCBs be documented?

Commenting Organization: CH2M HILL
General Comment #:

Commenter: White

A discussion of the non-PCB constituents should be included in Section 3.

SPECIFIC COMMENTS

Commenting Organization: CH2M HILL Commenter: White
Section: ES Page #: ES-4 Lines #: NA
Specific Comment #:

RAO 1 – how will remedy success be defined? The detailed evaluation of alternatives in the FS related to this RAO needs to discuss the time frame in which fish tissue concentrations are expected to decline, and to what level.

Commenting Organization: CH2M HILL Commenter: White
Section: ES Page #: ES-4 Lines #: NA

The FS should explicitly describe how RAO 4 (reduce transport from Area 1 to downstream areas) will be addressed.

Commenting Organization: CH2M HILL Commenter: White
Section: ES Page #: ES-4 Lines #: NA
Specific Comment #:

Remedial Approach for Sediments – Revise text to indicate that the long-term SWAC goal will be applied to Area 1 as a whole based on the assumption that fish spend an equal amount of time everywhere in the river channel in Area 1.

Commenting Organization: CH2M HILL
Section: ES Page #: ES-5
Specific Comment #:

Commenter: Keiser
Lines #: NA

Text and Figure ES-1 - KPT 20 does not appear to be included in areas for hot spot removal and no justification is provided.

Commenting Organization: CH2M HILL Commenter: White
Section: ES Page #: ES-7 Lines #: NA
Specific Comment #:

The sediment PRG is 0.33 mg/kg, and the post-TCRA SWAC in Portage Creek is estimated to be 1.8 mg/kg. An additional remedial alternatives should be added for removal of sediments with PCBs > 1 mg/kg.

Commented [pw1]: Added 1 mg/kg scenario

Commenting Organization: CH2M HILL
Section: ES Page #: ES-7
Specific Comment #: 1

Commenter: White
Lines #: NA

First paragraph under "Remedial Approach for Floodplain Soils - delete the phrase "While no further action may be merited for floodplain soils."

Commenting Organization: CH2M HILL
Section: Figure ES-2 Page #: ES-8
Specific Comment #: 1

Commenter: Dillon
Lines #: NA

Figure ES-2 - It is unclear what is intended by the arrow between the two text boxes. Please clarify in the notes or delete the arrow. In addition, revise the definition of "red outline" in the legend to read "species type not documented at the Site but up to 17 species found at the Site are estimated to fall in this category."

Commenting Organization: CH2M HILL
Section: Figure ES Page #: ES-8
Specific Comment #:

Commenter: Dillon
Lines #: ~~7~~NA

Insert the following text at the end of the last paragraph:

Proposed PRGs were selected from the range of RBCs presented in Figure ES-2 and attempted to balance uncertainty and protectiveness to assure that the PRGs are protective of all receptor groups and exposure pathways, while not being overly conservative given the uncertainty in the information.

Commenting Organization: CH2M HILL
Section: ES Page #: ES-8
Specific Comment #:

Commenter: Keiser
Lines #: NA

Last sentence "current conditions are protective across all the RBCs... except for RBCs based on the most conservative and highest uncertainty approaches." Delete the word "most" - Table ES-3 uses the geomean of the NOAEL and LOAEL, and comparison to the NOAEL would be the most conservative approach.

Commenting Organization: CH2M HILL
Section: Table ES-3 Page #: ES-9
Specific Comment #:

Commenter: Dillon
Lines #: NA

Change the footnote 2 that reads "No species of this category have been identified at the Site" to read as follows:

Species type currently not documented at the Site but up to 17 species found at the Site are estimated to fall in this category

<u>Commenting Organization: CH2M HILL</u>	<u>Commenter: White</u>
<u>Section: ES</u>	<u>Page #: ES-9</u>
<u>Specific Comment #:</u>	<u>Lines #: NA</u>

Table ES-3 Footnote 2 "No known highly sensitive vermivorous species have been identified at the Site." Change the word "identified" to "documented."

<u>Commenting Organization: CH2M HILL</u>	<u>Commenter: White</u>
<u>Section: ES</u>	<u>Page #: ES-9</u>
<u>Specific Comment #:</u>	<u>Lines #: NA</u>

"The percent protectiveness at the LOAEL RBC is higher." Either delete this sentence or amend it to also indicate that percent protectiveness at the NOAEL RBC is lower.

<u>Commenting Organization: CH2M HILL</u>	<u>Commenter: Dillon</u>
<u>Section: ES</u>	<u>Page #: ES-9 - ES-10</u>
<u>Specific Comment #:</u>	<u>Lines #: NA</u>

Add the following text after line 8.

However, the categorization of avian receptors at the site is incomplete. Estimates are that between four and 17 high sensitivity species, some of which may be vermivorous, could be present on site. For high sensitivity insectivores (e.g., the grey catbird and European starling, represented by the house wren), the results were not in agreement - with one approach indicating no unacceptable risk and a second indicating likely risk.

Commented [pw2]: Not clear where this goes - there are only four lines of text on page ES-9

<u>Commenting Organization: CH2M HILL</u>	<u>Commenter: Dillon</u>
<u>Section: ES</u>	<u>Page #: ES-10</u>
<u>Specific Comment #:</u>	<u>Lines #: 9</u>

Delete line 9 and replace with the following text.

As discussed in the TBERA, there is uncertainty around estimating PCB concentrations in eggs from the site depending on alternative approaches to deriving bioaccumulation factors (BAFs). Egg-based RBCs for birds (12 and 25 mg/kg) based on those alternative BAFs are comparable to those of the shrew. Thus, RBCs of 11 and 18 mg/kg are considered protective of both birds and mammals at the Site.

<u>Commenting Organization: CH2M HILL</u>	<u>Commenter: Dillon</u>
<u>Section: ES</u>	<u>Page #: ES-10</u>
<u>Specific Comment #: 2</u>	<u>Lines #: 8</u>

The text states the no high-sensitivity vermivores are present within.... Change are present to "have been documented" within.

Commenting Organization: CH2M HILL
Section: 2.2 Page #: 2-3
Specific Comment #:

Commenter: Keiser
Lines #: NA

Second paragraph, last sentence – What is meant by “The participants also agreed that the Area1 TBERA would use the inputs to the CDM Site-Wide BERA as a point of departure.”?

Commenting Organization: CH2M HILL
Section: 3 Page #: 3-4
Specific Comment #:

Commenter: Keiser
Lines #: NA

Second paragraph and Table 3-3, KPT 20 is listed as a hotspot area but is not carried forward in the FS. Elimination of KPT 20 must be justified.

Commenting Organization: CH2M HILL
Section: 3 Page #: 3-5
Specific Comment #:

Commenter: White
Lines #: 8-9

Delete the phrase “However, these concentrations are relatively low” and revise the rest of the sentence as follows: “Average and median surface sediment PCB concentrations were 2.2 mg/kg and 0.17 mg/kg, respectively.”

Commenting Organization: CH2M HILL
Section: 3 Page #: 3-8 and 3-9
Specific Comment #:

Commenter: White
Lines #: 16

Last bullet on page 3-8 – “Monitoring is continuing to evaluate the stability of the banks and the clean soil buffer zone. The Area 1 FS will incorporate results of the monitoring program in considering the permanence and effectiveness of the removal action.” [The evaluation of potential future channel migration in the former Plainwell Impoundment and Plainwell #2 Dam Area should qualitatively consider a longer time frame (e.g., 30 years) than the period of time currently addressed by the monitoring program (i.e., the FS report should acknowledge that the configuration of the river channel will change over time).]

Commented [pw3]: Revised to address how we want them to address this point.

Commenting Organization: CH2M HILL
Section: 3 Page #: 3-9
Specific Comment #:

Commenter: White
Lines #: 16

In line 10 of the second bullet, please revise as follows (additional text in italics): “This estimate is subject to considerable uncertainty, in particular with respect to the area *and depth* of floodplain soils impacted . . .”

Commenting Organization: CH2M HILL
Section: 3 Page #: 3-12
Specific Comment #:

Commenter: White
Lines #: NA

“Low-level continuing sources of PCBs are present from the atmosphere, upstream areas, and the urbanized areas of the watershed, and in the future, these sources may ultimately limit the

lowest achievable levels of PCBs in fish.” Add any unremediated Area 1 sediments and floodplain soils to the list of low-level continuing sources of PCBs.

Commenting Organization: CH2M HILL
Section: 3 **Page #:** 3-12
Specific Comment #:

Commenter: White
Lines #: NA

“ . . . further sampling in portions of Area 1 may be undertaken if necessary to further assess PCB hot spot assessment areas . . . ” Please describe under what circumstances any additional sampling would be performed – would this part of remedial design if these areas are included in the selected remedy? This comment also applies to the last paragraph on page 5-5.

Commenting Organization: CH2M HILL
Section: 3 **Page #:** 3-12
Specific Comment #:

Commenter: White
Lines #: NA

Potential for Bank Sources of PCBs (page 3-12) and footnote 4 on page 3-13 – this discussion focuses on PCBs in bank soils between and above the former impoundments. The footnote on page 3-13 states that “ . . . river banks downstream of this point have been addressed as part of the two TCRA’s . . . ” However, GP’s response to specific comment #10 on the Area 1 SRI in the SRI indicated that “conclusions regarding channel stability have not yet been reached” and “the potential for future channel migration in the former Plainwell Impoundment and Plainwell #2 Dam Area will be assessed in the Area 1 Feasibility Study as needed to support the development and evaluation of remedial alternatives.” Please expand the discussion in this section to also qualitatively address future channel migration in the former impoundments given that the channel configuration will change over time. The FS ASTM should acknowledge that any PCB-containing floodplain soils left in place may act as an ongoing source of PCBs to the river, potentially controlling the degree to which fish tissue concentrations can recover. This comment should also be addressed on page ES-3 of the Executive Summary.

Commented [pw4]: Revised to clarify how we want them to address this point.

Commenting Organization: CH2M HILL
Section: 3 **Page #:** 3-12
Specific Comment #:

Commenter: White
Lines #: NA

Potential for Bank Sources of PCBs, first paragraph, last sentence – please revise as follows: “. . . and also contained elevated PCB soil concentrations. although The erosion rates, bank heights . . . ”

Commenting Organization: CH2M HILL
Section: 3 **Page #:** 3-12
Specific Comment #:

Commenter: White
Lines #: NA

Potential for Bank Sources of PCBs, second paragraph, third sentence – “Note that based on USEPA’s requests, an alternative to address floodplain and bank soils in Area 1 . . . is included in the development of alternatives presented in Section 7.2. Add a reference to the specific alternative as follows: “ . . . Section 7.2 (Alternative FP-3). ””

Commenting Organization: CH2M HILL

Commenter: White

Section: 3 Page #: 3-12 Lines #: NA
Specific Comment #:

Potential for Bank Sources of PCBs, second paragraph, fourth sentence – revise as follows (new text shown in italics): “Continued inputs of PCB-containing soils from river banks and floodplains could potentially have some impact on the effectiveness of long-term achievement of the remedial goals for sediment and fish.”

Commenting Organization: CH2M HILL Commenter: White
Section: 3 Page #: 3-13 Lines #: NA
Specific Comment #:

The calculations performed to evaluate potential bank sources of PCBs are difficult to follow in narrative format. Please add a table of the input parameters used in the calculation, and the results for each step of the calculation. Please incorporate the bounding estimates provided in the last paragraph on page 3-14 into this table.

Commenting Organization: CH2M HILL Commenter: White
Section: 3 Page #: 3-14 Lines #: NA
Specific Comment #:

Please revise the first sentence of the last paragraph as follows (changes shown in italics and strikeout): “Given the relatively low erodibility of the banks outside of the former impoundments compared to the banks within them, this material may take many years (if ever) to erode into the river.”

Commenting Organization: CH2M HILL Commenter: White
Section: 4 Page #: 4-10 Lines #: NA
Specific Comment #:

RAO 1 – Revise the sentence in the first bullet as follows (change shown in italics): “This RAO is intended to protect human health by reducing the levels in fish taken by Kalamazoo River anglers and/or by otherwise reducing exposure of anglers and their families to PCBs.” In the FS, the discussion related to this RAO for each remedial alternative should discuss the time frame in which fish tissue concentrations are expected to decline, and to what level. How will remedy success be defined? This comment should also be addressed on page ES 4 of the Executive Summary.

Commenting Organization: CH2M HILL Commenter: White
Section: 4 Page #: 4-10 Lines #: NA
Specific Comment #:

RAO 3 – Revise the sentence in the third bullet as follows (change shown in italics and strikeout): “This RAO is intended to protect location populations of birds and mammals ecological receptors by reducing PCB concentrations . . .”

Commenting Organization: CH2M HILL Commenter: White
Section: 4 Page #: 4-10 Lines #: NA

RAO 4 is never explicitly discussed in the ASTM (reduce transport from Area 1 to downstream areas). In the FS, Please add text *should be included* that describes how this RAO will be addressed/achieved for each remedial alternative. This comment should also be addressed on page ES 4 of the Executive Summary.

Commenting Organization: CH2M HILL
Section: 5.1 **Page #:** 5-2

Commenter: White
Lines #: NA

Section 5.1.2 (Hot Spot Areas), first paragraph – amend this paragraph to indicate that focused remediation of the hot spots would also address RAO 4 (reduce transport of PCBs from Area 1 to downstream areas and Lake Michigan).

Commenting Organization: CH2M HILL
Section: 5.1.2 **Page #:** 5-3
Specific Comment #:

Commenter: Keiser
Lines #: NA

~~Same as comment??~~ What is the justification for elimination of KPT 20?

Commenting Organization: CH2M HILL
Section: 5 **Page #:** Table 5-1 and 5-2
Specific Comment #:

Commenter: Keiser
Lines #: NA

The first column on Tables 5-1 and 5-2 list subsections, these subsections need to be shown on Figure 5-11.

Commenting Organization: CH2M HILL
Section: 5.1.4 **Page #:** Figure 5-11/Table 5-2
Specific Comment #:

Commenter: Keiser
Lines #: NA

Provide a summary table that identifies the locations, maximum concentration, area and mass for each of the locations with concentrations >1.0 mg/kg.

~~**Commenting Organization:** CH2M HILL **Commenter:** White
Section: 5 **Page #:** 5-6 **Lines #:** NA~~

~~Last paragraph – “The period of inundation and other considerations needed to establish to what extent these areas may contribute to bioavailability of PCBs in the aquatic food chain [have] not been defined, *although may be subject to further evaluation in other areas of the Site.*” Please clarify the meaning of the second part of the sentence shown in italics above.~~

~~**Commenting Organization:** CH2M HILL **Commenter:** White
Section: 5 **Page #:** 5-8 **Lines #:** NA
Specific Comment #:~~

~~First paragraph, Line 9 – “For areas 1 through 5 . . .” Please change “areas” to “Sections” to be consistent with Table 5-2.~~

~~**Commenting Organization:** CH2M HILL **Commenter:** White~~

Section: 5.1.4 **Page #: Table 5-3** **Lines #: NA**
Specific Comment #:

For the last three columns associated with Hypothetical Additional Hot Spots, change the symbol “-” to “currently unknown” or similar.

Commenting Organization: CH2M HILL **Commenter: White**
Section: 5.2 **Page #: 5-9** **Lines #: NA**

First paragraph – “ . . . to identify whether or not a remedial action in the target areas would result in a significantly higher level of protection . . . ” Either define the term “significant” in this context, or delete it.

Commenting Organization: CH2M HILL **Commenter: White**
Section: 5.2.1 **Page #: 5-12** **Lines #: NA**

Third paragraph – revise the following sentences as shown (changes shown in strikeout) - “The NOAEL is a value below which no adverse effects have been observed and is included as a lower bound of potential effects, ~~but would not be considered a target goal for remedy implementation.~~ The LOAEL is a value at which adverse effects begin to occur in some species, and depending on the underlying toxicity data and the spatial application of the PRGs, ~~can be an appropriate basis for evaluating population level effects.~~”

Commenting Organization: CH2M HILL **Commenter: Dillon**
Section: 5.2.1 **Page #: 5-13** **Lines #: 10**
Specific Comment #:

Change the text of last line of the second paragraph to read:

Table 5-6 summarizes the ranges of RBCs that will be considered as potential PRGs for the protection of wildlife. These ranges focus on the RBCs protective of receptor groups for which possible risk was identified in the Area 1 TBERA.

Commenting Organization: CH2M HILL **Commenter: Dillon**
Section: 5.2.1 **Page #: 5-13** **Lines #: 10**
Specific Comment #:

Insert the following text at the end of the second paragraph:

These RBCs represent a range of protectiveness and uncertainty. Proposed PRGs were selected from that range and attempted to balance uncertainty and ~~protectiveness~~ to assure that the PRG was protective of all receptor groups and exposure pathways, while not being overly ~~conservative~~ given the uncertainty in the information.

Commenting Organization: CH2M HILL **Commenter: Dillon**
Section: 5 **Page #: Figure 5-13** **Lines #: NA**
Specific Comment #: 3

It is unclear what is intended by the arrow between the two text boxes. Please clarify in the notes or delete the arrow.

Change the note that reads "Red Outline – Species type not found at the Site" to read as follows: Species type currently not documented at the Site but up to 17 species found at the Site are estimated to fall in this category

Commenting Organization: CH2M HILL
Section: Figure 5
Page #: Figure 5-17
Specific Comment #:

Commenter: Dillon
Lines #: NA

Please check the notes on this figure. There are notes for tPCBs and TEQ but they do not appear anywhere on the figure.

Commenting Organization: CH2M HILL
General Comment #: Section 5 figures

Commenter: Dillon

Because of the discussion in the text concerning the various RBC and approaches it is unclear in many of the figures what the EPC is expressed in. Please add the note that the EPC is for total PCBs to Figures 5-13, 5-17, 5-18, 5-19, and 5-24.

Commenting Organization: CH2M HILL
Section: 5.2.3
Page #: 5-17
Specific Comment #:

Commenter: White
Lines #: NA

Delete the following sentence: "The LOAEL-based RBC may be the more appropriate decision making value as described in Section 5.2.1."

Commenting Organization: CH2M HILL
Section: 5.2.3
Page #: Table 5-9
Specific Comment #:

Commenter: White
Lines #: NA

In the legend, please revise the note in the legend as follows (changes shown in strikeout and italics): "No species of this category have been ~~identified~~ documented at the Site." Also replace the word "identified" with "documented" in Notes 3 and 4.

Commenting Organization: CH2M HILL
Section: 5.2.3
Page #: Page 5-19
Specific Comment #:

Commenter: White
Lines #: NA

Current Conditions – "In addition, both of these RBC values are based on the assumption that high sensitivity vermivores are present at the site, when in fact, none have been observed."
Replace the word "observed" with "documented."

Commenting Organization: CH2M HILL
Section: 5.2.3
Page #: Page 5-22
Specific Comment #:

Commenter: Dillon
Lines #: NA

Commenting Organization: CH2M HILL
Section: 5.2.3
Page #: 5-22

Commenter: Dillon
Lines #: 21

Specific Comment #:

Delete the second paragraph and replace with the following:

Based on the range of potential PRGs discussed in Section 5.2.1 and their relative confidence, in combination with the RAL analysis summarized below, values of 11 mg/kg PCB and 18 mg/kg PCB are proposed as the PRGs. The PRG of 11 mg/kg PCB is taken from the LOAEL-based RBC and 11 mg/kg PCBs is the geometric mean of the dietary NOAEL and LOAEL for the shrew. It is assumed that these PRGs also provide protection for high-sensitivity birds that may be present in the floodplain. The proposed PRGs are considered to be protective of all receptor groups and exposure pathways, while not being overly conservative given the uncertainty in the information.

Commenting Organization: CH2M HILL

Commenter: Dillon

Section: 5.2.3

Page #: 5-23

Lines #: 27-28

Specific Comment #:

Replace the first two sentences of the third paragraph with the following:

The RAL of 20 mg/kg is also evaluated further for the 2-acre home ranges (insectivorous and vermivorous birds). This evaluation is conducted to demonstrate that the recommended RALs and PRGs would also be protective of local populations of avian receptors, which have larger home ranges.

Commenting Organization: CH2M HILL

Commenter: White

Section: 5.3

Page #: Page 5-24

Lines #: NA

Specific Comment #:

The post-TCRA SWAC for Portage Creek is 1.8 mg/kg, which is comparable to the SWACs in most of the hot spot areas evaluated in Section 5.1.2. Additional target areas for remediation should be identified using a 1 mg/kg RAL.

Commented [pw5]: Revised to use 1 mg/kg RAL

Commenting Organization: CH2M HILL

Commenter: White

Section: 6.1

Page #: Table 6-1

Lines #: NA

Specific Comment #:

First row - Please delete the second sentence as shown - "No further remedial measures or monitoring conducted. ~~Would rely on ongoing natural attenuation of PCBs in sediments to further reduce exposures.~~" For no further action, no measures would be taken or relied upon to reduce risk over time.

Commenting Organization: CH2M HILL

Commenter: Keiser

Section: 7

Page #: 7-2

Lines #: NA

Specific Comment #:

The alternatives are based on areas, identify the target cleanup criteria for each alternative listed.

Commenting Organization: CH2M HILL
Section: 7
Specific Comment #:

Commenter: White
Lines #: NA

First paragraph under the bullets - For the sediment alternatives, the text states "it is assumed that all of the active sediment alternatives will include consideration of ongoing natural recovery processes and institutional controls until long term goals are achieved." MNR should be specifically listed as a component of alternatives SED-3A, 3B, 4A, 4B, 5A, and 5B. This is directly related to the comment related to RAO 1 - how will remedy success be defined? This comment should also be addressed on page ES-6 of the Executive Summary.

Commenting Organization: CH2M HILL
Section: 7
Specific Comment #:

Commenter: White
Lines #: NA

Second paragraph - revise the following sentence as shown (changes shown in italics) - "Actual removal depths as well as required cap thickness and slope requirements will be established based on practical considerations and details concerning how and over what time frame cleanup goals would be achieved for individual remediation areas."

Commenting Organization: CH2M HILL
Section: 7.1.1

Commenter: White
Lines #: NA

The description of the no further action alternative states that "natural recovery processes would be relied upon to further reduce risk over time." For the no further action alternative, no measures would be taken or relied upon to reduce risk over time.

Commenting Organization: CH2M HILL
Section: 7.3

Commenter: White
Lines #: NA

Given that the post-TCRA SWAC in Portage Creek is estimated to be 1.8 mg/kg, additional remedial alternatives should be developed and evaluated in the FS using a 1 mg/kg RAL.

Commented [pw6]: Added 1 mg/kg RAL

Commenting Organization: CH2M HILL
Section: 7.3.1
Specific Comment #:

Commenter: White
Lines #: NA

Delete the following sentence - "Natural recovery processes would be relied upon to further reduce risk over time." For no further action, no measures would be taken or relied upon to reduce risk over time.

Editorial comments:

Page 3-6, last line - insert a space between the right parenthesis and the word "adjacent"
Page 5-1, first bullet - change "media" to "medium"
Page 6-6, Section 6.4.2, first sentence - change "land use restrictions was" to "land use restrictions were"